RESILIENCE!

NOVEMBER 2024

THE GREAT FLOOD OF '47

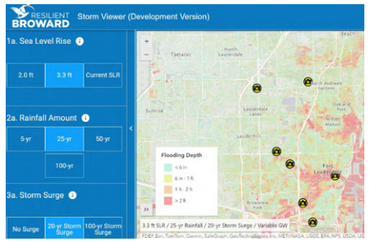
After the drought, the storms. When Broward County was underwater.

NEWSLETTER OF THE BROWARD COUNTY RESILIENT ENVIRONMENT DEPARTMENT

BROWARD COUNTY FLORIDA | RESILIENT ENVIRONMENT

IN THIS ISSUE...

Cover photo: strong winds at the intersection of South Flagler Drive and 1st Street (Banyan Blvd.) in West Palm Beach, Florida. September 17, 1947 Florida State Archives.



Above: Development screenshot of the Resilient Broward interactive Flood Viewer, which allows performance comparison of adaptation strategies.

Resilience Plan Progress

In March 2022, the Resilient Environment Department contracted Hazen and Sawyer to prepare a multi-year county-wide planning effort focused on building community resilience to the impacts of climate change predicted over the next half-century in Broward County.

STATUS UPDATE

The Hazen team has produced a detailed plan of proposed resilience strategies to address flood conditions predicted across Broward County over a 50-year time horizon.

The plan supports phased implementation to boost community resilience, focusing on enhanced stormwater storage, investments in both green and gray infrastructure, and upgrades to the water conveyance system.

The economic analysis estimates the current dollar value benefits of adaptation strategies in five areas: avoided property damage, preservation of economic activity, retention of flood insurance coverage, protection of property value and annual property tax revenue.

broward.org/ResiliencePlan

RESILIENT BROWARD

SAVE THE DATE!

16TH ANNUAL COMPACT SUMMIT

WHERE:
Casa Marina Key West Hotel
1500 Reynolds Street
Key West, Florida 33040

WHEN:
December 16, 2024 - December 18, 2024

A key convening of regional leadership, partners and stakeholders engaged in climate initiatives across the four counties of Palm Beach, Broward, Miami-Dade and Monroe Counties, designed to foster collaboration, aid knowledge exchange, highlighting progress, promote model projects, and bring attention to new opportunities and innovations in furtherance of shared climate mitigation and adaptation goals.

WATER MATTERS DAY

WHERE:
Tree Tops Park, Davie

WHEN:
Saturday, March 8th, 2025, 9 AM – 3 PM

We expect over 50 educational exhibits and booths helping residents and visitors learn about water conservation techniques, smart irrigation, native landscaping, and what role they play in protecting and conserving our water supplies.

Broward County's Natural Resources and Urban Planning staff.

BROWARD'S LEED GOLD ACHIEVEMENT

The County has achieved the coveted LEED (Leadership in Energy and Environmental Design) Gold certification. This certification helps local leaders measure and manage progress in community conditions, in pursuit of a more sustainable, resilient and equitable future.

Broward County is part of a growing group of local governments to be certified using the LEED for Cities & Communities rating system, created by the U.S. Green Building Council (USGBC), and is the world's most widely used green building rating system.

With this, cities and communities can create and implement responsible and sustainable plans for natural systems, transportation, and many other factors that contribute to quality of life.

broward.org/sustainability

"A sustainable city balances social, economic and environmental concerns in its decision making and planning. A LEED city takes those plans forward as solutions that improve the overall quality of life for its residents. Broward County's LEED certification is a symbol of their leadership on sustainability."
PETER TEMPLETON, PRESIDENT AND CEO, USGBC.

EMPOWERING THE CARBON-CONSCIOUS BUSINESS

Broward County's Resilient Environment Department is seeking partners to spearhead the Carbon Conscious Business Program, a new initiative designed to help local businesses measure, track, and reduce their carbon emissions.

This program is a vital part of the County's ongoing efforts to combat climate change, supporting the County-wide Climate Action Plan by targeting emissions in the business sector.

Through the Carbon Conscious Business Program, businesses will have access to a range of resources to assess their carbon footprint and identify opportunities for cost savings while reducing their environmental impact.

The County will provide expert guidance, workshops, and practical tools to help businesses implement effective strategies for lowering emissions. By participating, companies can make a real difference in our community's sustainability efforts.

Examples of social media content shared on LinkedIn, Facebook and Instagram channels during the summer, ranging from the Paris Olympic organizers use of a carbon free alternative of water misters and LED lights, to the County's Naturescape's Florida-Friendly landscaping program.

Businesses that take part in the program will be recognized as leaders in the fight against climate change. This distinction not only enhances a company's reputation but also appeals to eco-conscious customers and partners, giving businesses a competitive advantage in the marketplace.

We encourage all local businesses to join us in this important initiative. By working together, we can significantly reduce our community's carbon footprint and create a more resilient future.

For more information or to register visit ***Broward.org/climate/carbon***.

COUNTY-WIDE NET ZERO PLAN

Broward County's Resilient Environment Department has officially begun development of the County-wide Net Zero Plan, designed to guide the community toward a more resilient future. The consultant team, led by EXP, will provide comprehensive outreach and data collection to create a tailored plan to guide the County in meeting its emissions reduction goals of 50% reduction by 2030 and Net Zero emissions by 2050.

One of the key benefits of this contract is the ability for individual municipalities to "piggyback" onto the County's efforts. By utilizing the same framework, Broward municipalities can develop their own customized decarbonization plans, enabling local efforts to align with the broader County-wide strategy.

If your municipality is interested in creating its own Net Zero Plan, please contact Dr. Gregory Mount at gmount@broward.org, or visit broward.org/resilience for more information.

Talk Of The Town

Everybody In Broward County Reads THE

FORT LAUDERDALE DAILY NEWS

MEMBER THE ASSOCIATED PRESS — AND EVENING SENTINEL — FULL NEA SERVICE AND TELEPHOTO

Smile In The News

ATLANTA (AP)—Maybe patience is a virtue, after all. Fifteen years ago someone stole Jim Brown's pocket watch from his home at Hampton, Ga. Today it was returned by police in an Atlanta pawn shop. Brown, now an Atlanta resident, reclaimed his watch.

57th YEAR. No. 28 — Phone 29 — FORT LAUDERDALE, FLORIDA, MONDAY, OCTOBER 13, 1947 — Phone 29 — PRICE: FIVE CENTS

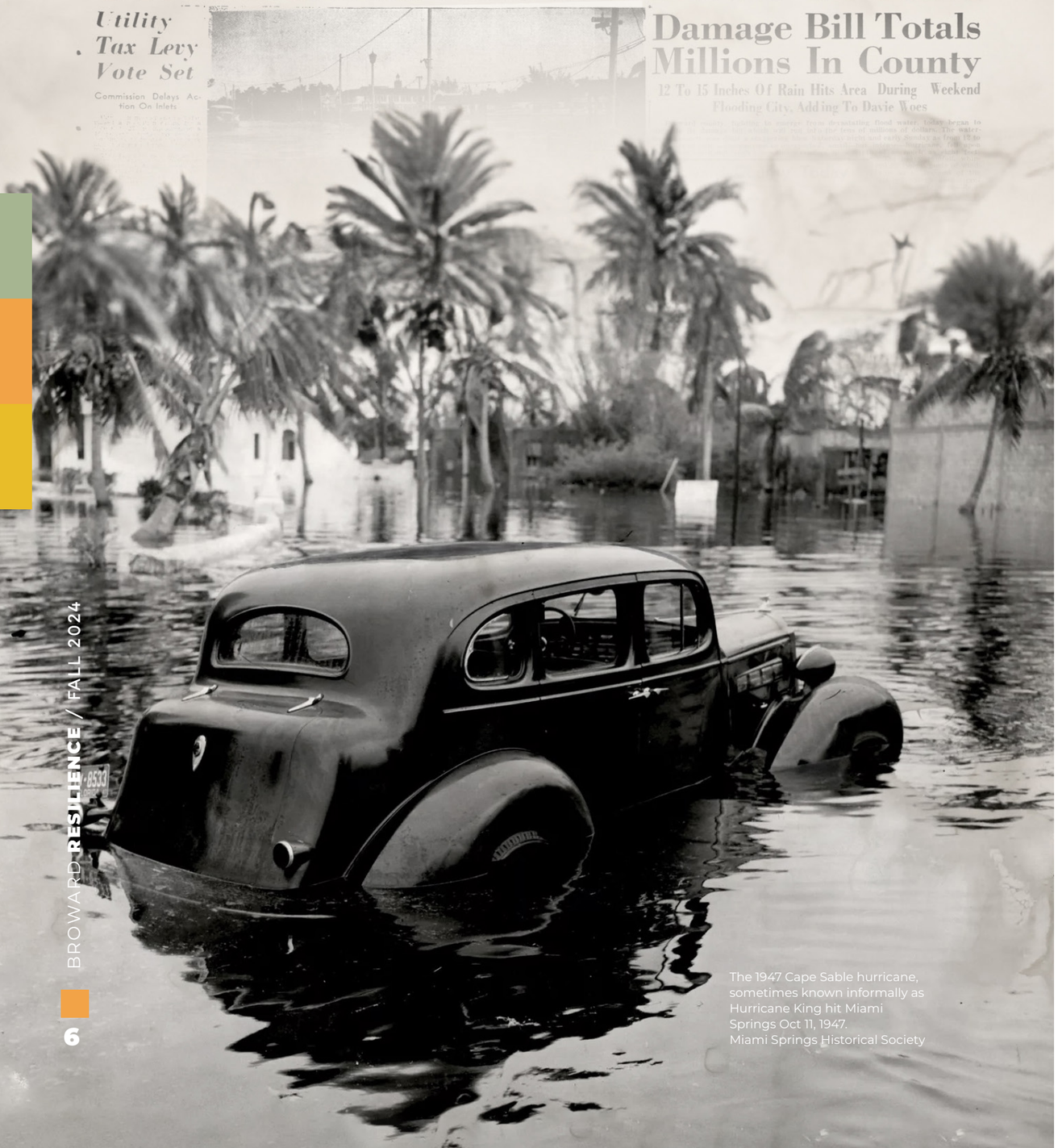
DAVIE, FT. LAUDERDALE HANDED STAGGERING BLOW BY BIG STORM

Utility Tax Levy Vote Set

Commission Delays Action On Inlets

Damage Bill Totals Millions In County

12 To 15 Inches Of Rain Hits Area During Weekend Flooding City, Adding To Davie Woes



The 1947 Cape Sable hurricane, sometimes known informally as Hurricane King hit Miami Springs Oct 11, 1947. Miami Springs Historical Society

THE GREAT FLOODS OF '47

AFTER YEARS OF DROUGHT, SOUTH FLORIDA WAS DRENCHED BY MORE THAN 100 INCHES OF RAIN, MORE THAN TRIPLING THE REGION'S TOTAL ANNUAL RAINFALL


Beach Places Loss At 4 Millions

MIAMI DAILY NEWS — STORM EXTRA

WIND-LASHED SOUTH FLORIDA DIGS OUT OF STORM'S DEBRIS

Hotels On Beach Hit Hard By Big Storm

Brunt Of Hurricane Falls Upon Pompano

Heavy Damage To Crops May Bolster Prices

Broward County has been significantly influenced by its waterways and human attempts to manage them. The most dramatic demonstration of water's destructive power occurred during the storms and floods of fall 1947.

This natural disaster compelled county and state officials to pursue more effective flood control measures - ultimately resulting in the creation of the Central and Southern Florida Flood Control District (now the South Florida Water Management District).

In the days following World War II the citizens of Broward County were hurricane-conscious. Most people monitored their home barometers, watching for pressure drops, and listening to radio broadcasts for news of inclement weather.

And they had good reason - ten hurricanes were reported during 1943, and the years that followed were just as active: Florida was in the path of two of six 1946 hurricanes.

After a post-war development boom in the region, inland cattle ranches, dairies, citrus groves, and truck crop farms were now suffering under extended drought conditions. Between 1943 and 1946, the Army Corps of Engineers observed that hundreds of cattle in the Kissimmee Valley pastures perished due to water shortages.

During this period, smoke from burning peat in the dry Everglades darkened the skies over coastal cities. Additionally, saltwater intrusion through drainage canals and the underlying rock threatened the purity of water supplies.

Finally, in March of 1947, hard rains came and by summer the once parched region had become heavily waterlogged.

On September 17, Hurricane Georges struck Florida's southwest coast as a category 5, passing west of Lake Okeechobee and dumping large amounts of rain on the already soaked upper Everglades. Georges was very large in size, with a wind field that brought destructive winds to a significant portion of the Florida east coast. Georges flooded most of the agricultural land south of the lake and brought hurricane-force winds from Cape Canaveral to south of Miami. Winds were clocked at 155 miles per hour at the Hillsboro Lighthouse.

In downtown Fort Lauderdale, the New River overflowed its banks, with white-caps reported breaking over the area and flooding luxury homes on the finger isles. Saltwater ruined Dania's tomato crop, while rainwater drowned the orange groves in Davie and bean fields in Pompano Beach.

The 1947 hurricane remains the most powerful storm to have made direct landfall in Broward County. Remarkably, it claimed only 17 lives in Florida, a number much lower than expected given the storm's size and intensity. This lower death toll can be attributed to better warnings, improved preparations, and stricter construction standards implemented since the 1920s.

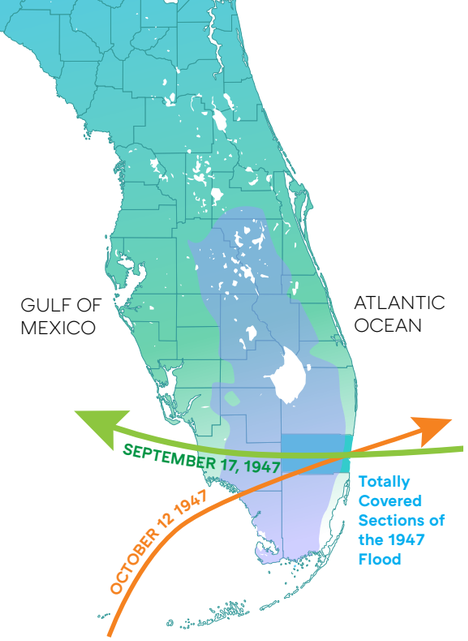
A SECOND HURRICANE

Before the area had a chance to recover from the devastation, another category 4 storm, King* (also known as the Cape Sable, or the Florida-Georgia Hurricane), struck with little warning on the weekend of October 12, heralded by high tides, spectacular thunderstorms and heavy rainfall. King made landfall north of the Dry Tortugas at Cape Sable, crossed the peninsula and headed across Broward County.

Although the storm was moderate compared to Georges, the flood impact was tremendous. The hurricane damaged 20,861 houses in southern Florida, 580 of them severely, and destroyed a further 248. On the morning of October 12, the Weather Bureau office in Miami measured 3.77 inches of rainfall in just a few hours, most of which fell within 20 minutes, eclipsing the previous daily record of 1.18 inches.

Further inland, King caused heavy crop damage, particularly to what remained of the Citrus groves and vegetable beds. Coastal cities were inundated once again. Due to saturated ground preceding the arrival of the storm, much of the county flooded easily. Fort Lauderdale received nearly 15 inches of rain in less than 24 hours.

*Not to be confused with Hurricane King, the last major hurricane of the 1950 hurricane season, and the most severe hurricane to strike the city of Miami since the 1926 Miami hurricane..



"Broward County from the air today is one vast lake which stretches from a point a few miles west of the ocean for the full 45 miles west to Collier County, where the lake continues. The vast flood stretches from Hialeah on the south northward to the Conners Highway and beyond in Palm Beach County, covering a total area of 600 square miles."

The Fort Lauderdale News, 10/13/47

The 1947 flood was, in area covered, the greatest ever in the US at the time. Eleven Florida counties were more than 50% under water, and in some areas these conditions lasted for up to three months. Ninety percent of eastern Florida, from Orlando to the Keys, was reportedly under water. Over 2,000 square miles of land south of Lake Okeechobee was covered by, in the words of U.S. Senator Spessard Holland, "an endless sheet of water anywhere from 6 to 7 feet deep down to a lesser depth."

President Truman dedicating Everglades National Park in 1947. NPS Photo.

EVERGLADES NATIONAL PARK

In 1937 and 1938, Daniel Beard, a wildlife technician for the NPS, traversed the Everglades region and made observations about its flora and fauna and the effects of drainage on them. Beard's main finding was that changed water levels, after the construction of the drainage canals, were fundamentally responsible for the depletion of characteristic plants and animals.

"Restoration of water levels is fundamental and must be accomplished if the area becomes a park. . . . Water is the basis for the unique features of southern Florida that make it of national park caliber."
Arthur .E. Demeray, Director National Parks Service, 1933-46

The state agreed in 1947 to the establishment of a "minimum" park, in terms of the area covered, something that would at least get portions of the Everglades protected. This acreage, totaling 454,000 acres and corresponding roughly to a section deeded to the United States in 1944, became Everglades National Park on 27 June 1947.

The U.S. Fish and Wildlife Service was given administrative authority over it, with Daniel Beard as manager.

These issues prompted state officials and Floridians to seek drastic measures, leading them to enlist the help of the U.S. Army Corps of Engineers* . In 1948, the Corps proposed a comprehensive water control plan aimed at reducing floods and ensuring water supply for urban and agricultural needs.

This plan also aimed to mitigate fires, soil subsidence, saltwater intrusion, and damage to plants and wildlife. Congress approved the plan in 1948, establishing the Central and Southern Florida Flood Control Project (C&SF).

WEEPING COW REPORT

The Weeping Cow Report: entitled "Tentative Report of Flood Damage, Florida Everglades Drainage District, 1947"

To garner support for flood control, residents compiled a book of photographs documenting the 1947 flood. Concerned that Congress might not approve the necessary funding for the comprehensive program, the residents suggested creating a booklet with 150 photographs of flood conditions, along with news stories from the 11 affected counties. The document soon became known as the "Weeping Cow" book.

This booklet would be distributed to Florida's congressional delegation, the Corps, and each member of Congress.

On June 30, 1948, President Truman signed the Flood Control Act, authorizing $70 million for the C&SF project's first phase. First steps included constructing levees and other flood control measures to protect east coast communities from flooding, as well as building structures to regulate Lake Okeechobee's levels and safeguard agriculture south of the lake.

SOUTHERN FLORIDA FLOOD CONTROL DISTRICT (FCD)

A state legislature agency - the South Florida Water Management District (SFWMD)'s predecessor - was created as the local sponsor for the federal flood control project and assumed the responsibilities of the now abolished Everglades Drainage and Okeechobee Flood Control districts. The FDC was charged primarily with providing flood protection, unlike today's multi-faceted SFWMD that also manages South Florida's water supply, improves water quality and restores natural systems.

* From the early 1800s, the Army Corps of Engineers served as the federal government's primary civil works agency, focusing mainly on navigation projects for rivers and lakes - including Lake Okeechobee. It wasn't until the 1930s that the federal government began to see flood control as a national concern. In 1936, Congress officially acknowledged flood control as a legitimate federal responsibility across the country.

By 1960, six pumping stations are serving the dual purposes of flood control and water supply. Construction of the Central and Southern Florida Project creates the Everglades Agricultural Area (EAA) south of the lake and water conservation areas between the EAA and the east coast.

1949: PUBLIC WORKS SYSTEM BEGINS

A comprehensive water management system designed to control and utilize water resources was built on the 'spine' of former drainage efforts. Between 1950 and 1960, the Corps undertook significant construction projects, digging 128 miles of canals and building or enhancing 300 miles of levees.

New systems included canals and levees to direct and control the flow of water, water retention areas to store water, prevent flooding and ensure a steady supply during dry periods, and pump stations were built to move water when gravity alone wasn't sufficient. Gated water control structures could now be opened or closed to manage water levels and flow.

The use of natural hydrologic basins and the slope of the land helped optimize the system, making it more efficient and sustainable. Three water conservation areas were created,

Floating crane working on the Central and Southern Florida Project at Lake Okeechobee.

which played a crucial role in recharging aquifers - vital for maintaining water supply during dry seasons.

In Broward County a levee erected at the eastern edge of the Everglades served to prevent uncontrolled water from flowing eastward. Canals were excavated from this levee to the ocean to facilitate drainage. This transformation made the area, previously prone to periodic flooding, suitable for agriculture and eventually urban development.

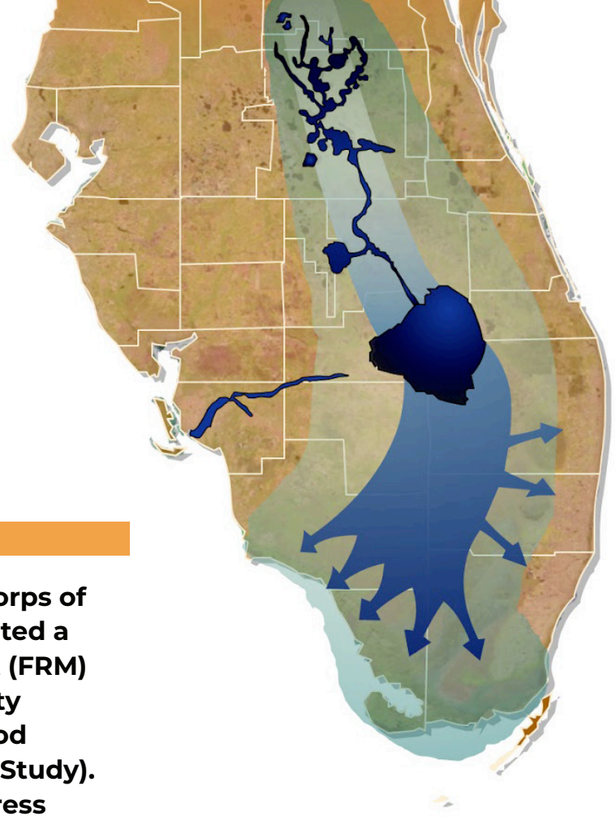
The central and southern sections of the Everglades were now divided into water conservation areas ringed by levees to control water levels. The East Coast Protective Levee effectively isolated 160 square miles of Everglades marsh and contains an additional 775 square miles of tributary watershed. This 105-mile-long levee still serves as a buffer between the Everglades Water Conservation Areas and some of the most populated areas of South Florida.

C&SF TODAY

In 2022, the U.S. Army Corps of Engineers (USACE) initiated a Flood Risk Management (FRM) study under the authority of Section 216 of the Flood Control Act (Section 216 Study). The study aimed to address the immediate flood risk to the C&SF Project caused by changing conditions such as climate change, sea level change, extreme rainfall, land development, and population growth in Palm Beach, Broward, and Miami-Dade Counties. These factors have significantly affected the performance of the C&SF Project as initially designed over 70 years ago.

Over the last 31-year period the most extreme rainfall in Broward County has occurred in the past 5 years, including the April 2023 and June 2024 flood events. Rising sea levels increasingly stress the water management system and cause significant flooding in coastal areas.

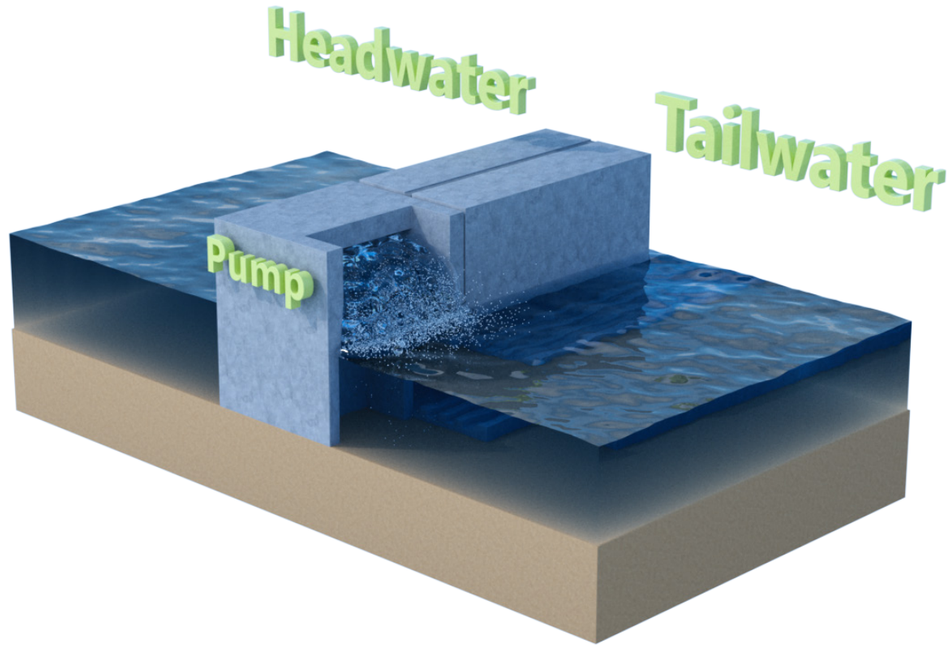
Based on these evolving conditions, and strong advocacy by Broward County to urgently address local flood risk needs, the South Florida Water Management District (District) has gained USACE approval to lead a more accelerated study focused on Broward County basins under Section 203 of the Water Resources Development Act (WRDA) with cost-share funding committed by Broward County.



Everglades ecosystem before the Central and Southern Florida Project. Courtesy of US Army Corps of Engineers.

This shift is designed to expedite the feasibility and engineering studies essential for protecting communities from escalating flood risks across the County.

The District, with technical and required federal agency support by the USACE, is advancing the Section 203 Study alongside the ongoing Comprehensive Study to accelerate the implementation of flood resilience projects.



The Section 203 Study will focus on key C&SF coastal structures and basins in highly vulnerable areas due to climate change, sea level rise and population growth. It will also prioritize the upgrade of the most affected gravity operated salinity control structures, where sea level rise is already causing failures.

The goal is to gain approval of study recommendations submitted to Congress for authorization as part of the Water Resources Development Act WRDA 2026 - a comprehensive legislative package that provides authorization and appropriations needed to advance large-scale water infrastructure projects.

Visit broward.org/resilience/

GOAL: IMPROVED SALINITY CONTROL STRUCTURES

CURRENT SCENARIO
Tailwater is equal to or greater than headwater.

SOLUTION
Forward pumps could be added to existing structures to continue to move water when gates are closed.

RESULT
Water can still be moved to tide, maintaining the ability to drain.

WRDA PROJECTS

WRDAs provide Members of Congress the opportunity to authorize U.S. Army Corps of Engineers Civil Works projects to improve the nation's ports and harbors, the inland waterway navigation network, flood and storm protection, and other water resources infrastructure. Congress has passed a bipartisan WRDA every two years since 2014.

DRONES, IMAGERY, AND VISUALIZATION

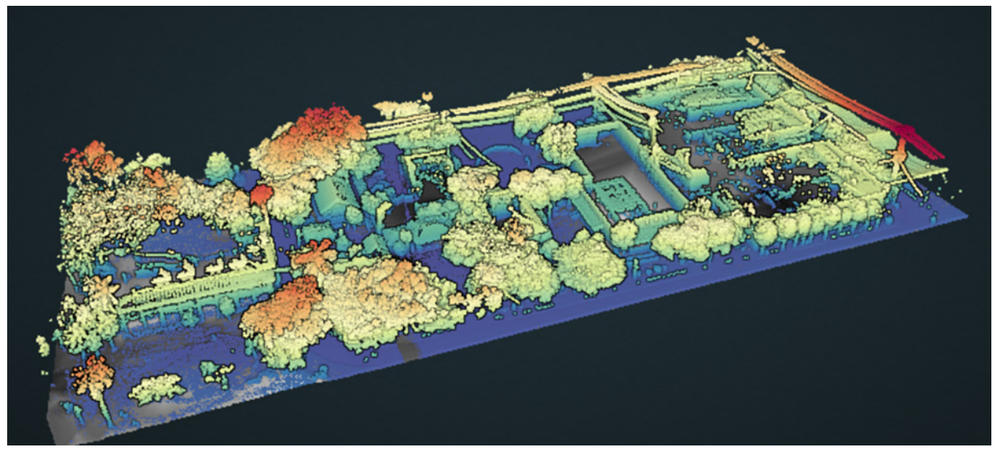
Innovation is everywhere in Broward County – including "overhead!" A drone in the hands of a geoscientist is like a highly intelligent bird soaring the skies, collecting data, and understanding the world around us.

DR. GREG MOUNT, shares insights into how drones have been integrated into operations, leading to innovative approaches in emergency response, environmental monitoring, and public information sharing. Among other duties, Dr. Mount leads the drone program for the County's Resilient Environment Department.

The County has been employing drones to further flood analyses and aid in the visual and communication of environmental data. This includes capturing storm events and imagery to show situations as observed in the field. The Resilience Unit has collected pre-storm imagery along the beach to assess changes with tide and erosion. This used to require ground-based collection by foot, and with several team members, so the drone approach provides big time savings.

The Department also also partners with other agencies to help them address other challenges, such as collecting high-resolution imagery for a construction project at Port Everglades, and collaboration with Public Works to create 3D models of parts of the County to plan for future projects. The drones add the ability for a reduced number of staff hours to accomplish more work, in a shorter time, at a cost savings to the County and Broward residents.

A 3D LiDAR photo collected from drone data



LIDAR TECHNOLOGY

Light Detection and Ranging (LiDAR) is a remote sensing method used to examine the surface of the Earth. A typical survey using LiDAR technology results in a relatively low resolution of 10 points per meter.

From Dr. Mount: "When I fly a LiDAR-equipped drone, depending on my flight elevations, I get at least 300 points per meter, so I get really high-resolution ground detail. And my level of accuracy and precision is within a few millimeters. So, the type of data that I can collect, in a very short period of time and a very quick turnaround time for processing, is equal to months in time savings.

Using traditional methods, it could have taken 3-6 months to collect and process the data. I can do the same using drone-mounted LiDAR in the same day.

As another variation, I strapped that same LiDAR equipment to my backpack and rode my bicycle around my neighborhood and was able to do it in about seven minutes. That would take a surveying team of multiple people several days. I collected billions of points in less than seven minutes. I'm able to even map the leaves on the trees. An FPL crew of two to three people are collecting points manually; I collected billions of points in minutes.

Once the data is collected, we upload the LiDAR into cloud-based servers, and we tell the software what we want it to look for. When we are looking at where flooding occurs, we can see changes in the swales, or something that would influence the ponding of water or restrict water movement.

The integration of drone technology within Broward County's operations exemplifies how innovation can lead to significant improvements in efficiency and data accuracy. These advancements not only benefit government agencies and public services but also enhance the overall safety and quality of life for the community."

RESILIENCE ROUNDTABLE

On September 26, 2024, Broward County Mayor Nan H. Rich and Vice-Mayor Beam Furr, co-chairs of the County's Climate Change Task Force, convened the 2024 Broward Leaders Resilience Roundtable at Long Key Nature Center in Davie.

This annual event brought together 81 participants, including representatives from 22 municipalities, despite inclement weather from Hurricane Helene. The attendees included 20 municipal elected officials and 9 municipal managers or assistant municipal managers.

KEY THEMES AND UPDATES

Dr. Jennifer Jurado, Broward County's Chief Resilience Officer, opened the Roundtable by revisiting key themes from the previous year's event. She stressed the importance of continuous community engagement and collaboration to build on previous outcomes and tackle emerging challenges. Major priorities identified included addressing extreme heat, prioritizing vulnerable communities, advancing the Central & Southern Florida (C&SF) Study, and enhancing water management and communication strategies.

Dr. Jurado specifically pointed to the need for infrastructure improvements to mitigate the impacts of severe weather, which have become increasingly frequent in Broward County.

RESILIENCE STANDARDS

Dr. Jurado reported significant advancements in resilience standards, particularly in flood risk management. A key update involved the revision of the groundwater table map to account for a projected 3.3 feet of sea level rise by 2070.

This modeling is essential for planning drainage and water management infrastructure, allowing for a proactive approach to community resilience. Additionally, the county is staying ahead of FEMA's flood map updates, which have expanded flood risk zones to include 90,000 new parcels.

Left: Dr. Jennifer Jurado, Chief Resilience Officer, Broward County; Center: Major Cory J. Bell, US Army Corps of Engineers; Right: Broward County Mayor Nan Rich.

WATER MANAGEMENT COORDINATION

A primary focus of this year's Roundtable was the need for better coordination in water management. Dr. Jurado referenced the challenges faced during the April 2023 flood event, highlighting the difficulties of real-time decision-making due to limited communications and data. In response, Broward County has reconvened the Surface Water Coordination Committee, which had been inactive since the COVID-19 pandemic. This committee is meeting quarterly and includes stakeholders from public works and water management sectors to enhance response capabilities during extreme weather events.

COMMUNITY RESILIENCE PROJECTS

A significant initiative discussed was the development of a county-wide Resilience Dashboard. This tool tracks and visualizes resilience projects across Broward County and is maintained by county staff to support data sharing. Important in providing a visual representation of the scope and scale of investments being advanced across the Broward community.

CLIMATE ACTION PLAN UPDATE

An update to the County's 5-year Climate Action plan is set to be finalized by the end of this year. This update includes 110 recommendations addressing various climate and resilience priorities. Key themes include the transition to zero waste, integration of transportation and resilience, and focusing on energy equity and proactive risk reduction.

ELECTRIC VEHICLE INFRASTRUCTURE

Participants at the Roundtable expressed the need to expand EV charging infrastructure across the county. Dr. Jurado announced that funding has been allocated to develop a comprehensive strategy for EV charging stations, prioritizing accessible public infrastructure and multifamily residential areas. The plan aims to facilitate an equitable transition to electric vehicles.

COUNTY-WIDE NET ZERO PLAN

Another focus area was the County-wide Net Zero Plan, which proposes to reduce greenhouse gas emissions by 50% by 2030 and achieve carbon neutrality by 2050. The plan allows municipalities to align their emissions reduction strategies with county goals, promoting a collaborative approach to CO2 emission reductions.

CARBON CONSCIOUS BUSINESS PROGRAM

Dr. Jurado introduced the Carbon Conscious Business Program, which aims to help local businesses reduce their greenhouse gas emissions. The program provides resources for measuring and tracking emissions and recognizes businesses that engage in climate action.

BUILDING BENCHMARKING PROGRAM

A Building Benchmarking Program was discussed as a proposed initiative to reduce emissions from larger buildings. The program would required mandatory energy use reporting for buildings over 20,000 square feet, which could include up to 18,000 public, commercial, mixed use and condominium properties, with the goal to achieve energy savings across the commercial sector.

Drew Bartlett, Executive Director, South Florida Water Management District addressed the Roundtable by remote (Major Cory J. Bell, US Army Corps of Engineers in foreground).

COMMUNITY ENGAGEMENT INITIATIVES

Community engagement was identified as an area of additional progress, with highlights inclusive of the County's partnership with climate artist Xavier Cortada to bring the award-winning "Underwater" climate art and community impact initiative to Broward County. Efforts included student engagement and workshops, murals and public art installations, and community conversations. This project, supported by the Community Foundation of Broward County, is now being augmented with additional installations and projects at the municipal level.

SOLID WASTE WORK GROUP

Vice Mayor Furr provided an update on the Solid Waste Work Group, focusing on reducing waste to reduce the amount of methane emissions. The workgroup plans to improve recycling programs, educate the public, and develop a comprehensive Solid Waste and Recycling Master Plan to address increasing landfill emissions.

Left: Monica Cepero, Chief Executive Officer of Broward County. Right: Broward County Vice Mayor Beam Furr.

RESILIENT WATER MANAGEMENT

The Roundtable included presentations by Mr. Drew Bartlett, Executive Director of the South Florida Water Management District and Major Cory Bell of the U.S. Army Corps of Engineers, Jacksonville District. Mr. Bartlett highlighted.... He discussed in detail the District's recent commitment to lead the C&SF Flood Resiliency Study in order to achieve an expedited timeline for study completion and project advancement, expected to include the installation of pumps and structural upgrades for primary water control structures in Broward County.

Major Cory Bell from the U.S. Army Corps of Engineers (USACE) provided an outline of resilience initiatives like the Coastal Storm Risk Management program and reiterated the importance of the Central and Southern Florida Flood Resiliency Study, Major Bell also shared various programs available to local governments for additional USACE support, such as canal dredging to improve water storage and conveyance. Together, SFWMD and USACE are advancing comprehensive, multifaceted strategies to enhance long-term flood resilience in the region.

MUNICIPAL HIGHLIGHTS

Seventeen municipalities shared their successes, priorities, and projects that they have accomplished or are currently working on. Many of which included vulnerability assessments, increasing EV charging and electrification of their fleets in addition to waste reduction and mitigating flood risk through sea walls and/or water management and storage.

In conclusion, the Annual Broward Leaders Resilience Roundtable continues to provides a valuable forum for collaboration and advancing of shared resilience priorities setting a strong foundation for ongoing resilience efforts in the face of climate change. Broward County is thankful for the ongoing collaboration and support from their municipalities and regional partners.

RESILIENT STRATEGY WORKSHOP

On October 4, 2024, Broward County took a major step in advancing its commitment to resilience by hosting a Resilience Strategy Workshop. This full-day event brought together administrators, directors, and managers across County operations to consider resilience drivers, stressors, cascading impacts, and action strategies.

This effort was inspired in part by Broward County's recent joining of the Resilience Cities Network (R-Cities) and substantially aided with the use of the Resilient Cities Framework, a tool co-developed and employed by the R-Cities members for this very purpose.

Designed to foster internal collaboration, the workshop intentionally grouped leaders from diverse divisions, helping participants develop a more comprehensive understanding of the county's resilience challenges and needs.

The event was facilitated by R-Cities staff with the support of

Arup, a strategic R-Cities partner in the development of the Resilience Framework.

Experts from these organizations traveled to Broward to share insights, lead discussions, and facilitate activities designed to help participants assess the strengths and vulnerabilities within county operations. Through interactive exercises, participants deepened their understanding of resilience and identified strategies to address future challenges, ranging from climate change to social inequality.

Broward County's workshop workshop marks a major milestone for the County as one of R-Cities most recent members. This prestigious urban resilience network, initially founded by The Rockefeller Foundation in 2013 to celebrate its 100th anniversary, consists of over 100 local governments globally, all committed to strengthening their ability to recover from environmental, economic, and social challenges. The official announcement of Broward County's membership was made on December 6, 2023, at the COP28 summit in Dubai.

By joining R-Cities, Broward County gains access to a wealth of resources, technical expertise, and a global network of cities working together to address complex challenges. Membership signifies the county's continued dedication to building a safer, more equitable, and sustainable future.

The R-Cities Network promotes integrated solutions, collaboration between local governments, and the exchange of knowledge to ensure urban communities are better prepared to withstand shocks, such as extreme weather events or economic disruptions.

The October 4th workshop was the first of many steps toward creating a new resilience strategy for Broward County operations. The discussions and activities revealed opportunities to enhance cross-departmental coordination, streamline operations, and build resilience countywide.

Looking ahead, the workshop outcomes will serve as a foundation for developing a formal resilience strategy, aligned with the county's long-term goals.

Monica Cepero, Chief Executive Officer of Broward County with staff at the Resilient Strategy Workshop.

Over the coming weeks, more detailed conversations will occur among subject matter experts in roundtables. The lessons learned from the workshop will be the building blocks in these roundtables, where we will identify specific actions to help better imbed resilience in the day-to-day operations of the county.

Once completed, the strategy will be a platform for sharing best practices with local governments worldwide.

Broward's inclusion in the R-Cities Network and kick-off of the resilience strategy highlights its ongoing leadership in resilience and sustainability. With support from this global coalition and partners like Arup, the county is well-positioned to advance its efforts to tackle challenges like climate change, social inequality, and economic stress.

A natural coral reef in Broward County

SHORELINE RESILIENCY

BROWARD COUNTY'S BEACH PROGRAM MANAGER **STEPHANIE ROCHE** AND MARINE RESOURCES MANAGER **ANGELA DELANEY** ON THE PROGRESS OF BROWARD COUNTY'S BEACH AND SHORELINE PROJECTS

Broward County's beaches are a driving force for tourism, the local economy, and environmental protections.

Our 24 miles of beaches attract over 12 million visitors a year, contribute more than $6 billion annually to our local economy, add $1.4 billion to County property values, protect more than $7 billion in shorefront property, structures, and infrastructure, and provide an essential coastal ecosystem for numerous species including shorebirds, plants, beach infauna, and critical habitat for thousands of nesting sea turtles annually.

Our beaches are maintained through the Broward County Shoreline Protection Project (SPP), which is a partnership with the federal government to address coastal erosion in Broward County.

The SPP incorporates traditional methods of beach maintenance in Broward County including beach nourishment – the process of placing additional sand on the beach either through pumping offshore sand onto shore or trucking upland mined sand to the beach. While these methods have been utilized to restore Broward's beaches for the past 50+ years, they are often costly and require periodic re-nourishment events to maintain a healthy beach profile.

To promote healthy, sustainable beaches, Broward County is investing in innovative maintenance strategies that are resilient, long-lasting, and functional.

> Our shoreline resilience strategies are evolving to become more holistic so that our beaches can remain enjoyable for residents and tourists, protective of upland infrastructure, and functional for wildlife habitat.

From supporting additional dune projects and funding to promoting artificial reef construction and installation, Broward County is gearing up to have its most resilient shoreline ever in the coming years.

Beach renourishment in Fort Lauderdale via truck haul.

The County is currently working with municipal partners in Dania Beach, Hollywood, and Hallandale Beach to design and construct a dune system along the newly restored Segment III shoreline.

In 2024, the U.S. Army Corps of Engineers completed their sand placement project in these municipalities. The addition of a complementary dune system in this area will help reduce erosion and promote sand stabilization. This dune project is still in planning phases, but construction is expected to take place in winter 2025.

DUNE GRANT PROGRAM

Broward County is proud to support smaller-scale dune restoration projects by offering a total of $50,000 in annual funding to local beachfront property owners, municipalities, and non-profit organizations through our competitive Dune Grant Program.

Funds are typically available starting in the fall and applicants can apply for up to $5,000 in funds per project. A minimum of 50% of the total grant amount ($2,500 in in-kind services or cash) is required. Grant funds can be used for removal of invasive dune species, planting of native species, installing protective post and rope barriers, etc.

Top: A dune in Hallandale Beach is restored by removing invasive dune species and planting native sea oats. Bottom: Ten months post-planting. This project received funding from the Broward County Dune Grant Program.

ARTIFICIAL REEF PROGRAM

A new addition to Broward's shoreline resiliency toolbox is $50,000 in available funding to support artificial reefs. Through the Artificial Reef program, the County is not only creating additional habitat for various marine organisms and fish but is also providing protection measures to alleviate user pressure on nearby natural reefs. Pressures include fishing and diving use and boat anchors that can cause physical damage to natural reefs by breaking coral or "uprooting" other attached marine animals. In addition, and as part of the Artificial Reef program,

LIVING SHORELINE

Living Shoreline projects are an important means to increase resilience of interior waterways against sea level rise and erosional impacts from storms by decreasing wave energy and providing ecologically valuable settlement and nursery habitat.

New living shoreline project under construction at Wahoo Bay in Hillsboro Inlet.

These projects are designed to stabilize shorelines using a combination of man-made structure and natural components, such as mangroves, to improve water quality, increase resiliency, restore otherwise grey structures, and add biologically functional projects into the County's permitted areas.

Current state and federal legislation priorities have recognized the importance of coral reefs and coastal habitats as natural infrastructure that contribute to the resilience of shorelines and mitigate climate change-related risks.

This recognition opens up external funding opportunities, geared toward preserving and conserving coral reefs, as well as supporting nature-based, green infrastructure solutions to increase the resiliency of shorelines.

The County's funding allocation could either advance one living shoreline/artificial reef project or partner with interested parties to fund portions of projects, ideally two projects annually.

With stronger tropical storms becoming the norm, shoreline resiliency is crucial to protect upland infrastructure and ensuring that beach habitat remains available for use by residents, tourists, and wildlife.

Broward County continues to invest in additional strategies to maximize shoreline resiliency and is excited to see how these new investments will enhance our beautiful beaches.

NEWS, OPPORTUNITIES AND UPDATES

LET'S GO NACIO!

Broward County received 29 NACIO Awards of Excellence in the 2024 competition for the quality of its public information and public education outreach campaigns.

The Resilience Unit took six of these honors, including 'Best In Category' for our Broward Resilience Newsletter for a second year in a row.

The annual competition recognizes the quality of public information and education outreach campaigns by County governments.

See the full list of Broward's winners at *Broward.org/Awards*

NACIO WINNER: a short social media video and rack card to draw attention to the dangers that pets might encounter during a prolonged heatwave in Broward County.

OPPORTUNITIES

We are seeking qualified candidates for a Sustainability Manager to support the Natural Resources Division.

The successful candidate will be responsible for sustainability programs/projects, public outreach and education. The Sustainability Manager will also provide vision and leadership in the implementation and development of new and existing outreach programs, policy, events, and projects, building relationships and raising environmental awareness in Broward County.

The Sustainability Manager will be familiar with regionally relevant sustainability considerations and resources, and have direct experience in planning and policymaking.

Visit *governmentjobs.com/careers/broward*

MEET THE TEAM

STEFAN PERRITANO

Hi! I recently joined the Resilient Environment team, bringing with me a deep passion for the natural world that began during my childhood in a military family. Growing up, I spent much of my time outdoors, which sparked my interest in working in the environmental sector. I went on to earn a BS and MS in Geology and a Graduate Certificate in GIS from Auburn University.

My career started at the University of Miami Hospital, where I worked on hazmat, environmental compliance, and a COVID-19 wastewater monitoring system. I then transitioned to the City of Fort Lauderdale Public Works, where I focused on stormwater issues, asset management, and sustainability.

Outside of work, my wife and I are Florida enthusiasts. We love the beach, listening to Jimmy Buffett, and recently completed our first triathlon together. When not exploring Florida, we like to travel and get out of our comfort zone. I'm excited to combine my experience and passion to help build a more resilient future for our community.

STAY IN TOUCH

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